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AGRICULTURAL RESEARCH PROGRESS REVIEW

Faculty of Agriculture

University of Jordan

Review and Report done at

the invitation of

Dean Subhi Qasem

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by

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The established policy for preparing and submitting research project proposals for approval is being followed. The scientists are mostly young and benefit by the experienced counselling provided by the department head, Dr. Yousef Tamimi. The experience of Dr. Khader is a valuable source of help and counsel for new faculty members.

Committees have been named and activated within the department to provide guidance and faculty input on matters of planning and personnel, curriculum, research, graduate studies, equipment and laboratories, library and seminars. This is a commendable policy that should build departmental spirit and morale.

Program review

The soil fertility research program projects of Drs. Saket, Khattari and Tamimi, Khader, Rawajfih and Al-Lozi are well planned and directed at significant soil fertility situations. The experimental designs and procedures being used are appropriate and should provide data that will lead to sound conclusions and publications. The interest and enthusiasm of the project leaders is excellent.

Soil characterization studies being carried out by Drs. Shadfan and Battikhi are potentially important to soil management and crop production. The research methods being followed are appropriate to the science and the resulting data should provide sound conclusions and guidance.

Soil moisture conservation research by Dr. Saket and soil moisture movement in soils by Dr. Battikhi are well designed projects on highly significant aspects of soil and water management. Intensive research of these types seem warranted.

Irrigation research of Drs. Judah, Bassett and Rushdi is new but of vital importance to the expanding practice of crop production under plastic. One project on one aspect of irrigation is far short of meeting the needs of irrigated agriculture in the Jordan Valley. Special effort seems justified in recruiting additional irrigation engineer scientists to conduct a research program more in line with the need for information by irrigation farmers.

Much of the research in soil fertility, soil management and irrigation involves growing a crop as a criterion of treatment effect, consequently cooperative project leadership with interested scientists in crop production is highly recommended.

Reporting and publication

The submittal of annual reports was good, but for the most part the reports failed to provide much useful information. As submitted, the reports contained mostly information directly from the project outline, which is convenient to have, provided the essential information on research progress is also given. Some of the reports were very well done and could serve as models. A standard format was used by all leaders; this is desirable.

Dean Subhi Qasem

This report is respectfully submitted in response to your request for a review of the Faculty of Agriculture research program. I appreciate having been invited by the College of Agriculture, Washington State University to make this research review for you. My experience administering research programs over a period of nineteen years gave me confidence to undertake this review.

I wish to convey my sincere appreciation to you for your kindness and guidance and I assure you of my persisting desire throughout the review to be objective and helpful to all concerned. I also express thanks to your Department heads, Drs. Tamimi, Abu-Gharbieh, Faqih and Arabiat for their efforts and cooperation. My appreciation is extended to all faculty members who provided me with information about their ongoing research.

Finally, I owe many thanks to members of the Washington State University cooperating team who provided much guidance plus transportation and many courtesies and services that have made my stay and work here very pleasant. I must cite Dr. Gardner Shaw especially for his guidance and overall helpfulness.

Review procedure

At the beginning of the review, I expressed a desire to visit personally with each faculty member within each department. This visitation began with a review with the department head relative to general procedures and a description of the nature of the departmental program. I was provided a listing of 1978-79 active-projects by department together with copies of annual progress reports prepared and submitted in compliance with your request. These reports I read and studied objectively and critically as you asked. In addition to the faculty interviews and the reports, I visited research facilities including laboratories, greenhouses, campus field plot areas and orchards, poultry facilities and the University farm in the Jordan Valley. All of this was helpful in giving me a perspective of your research program and its operation.

I have prepared a review report covering the program and activities of each department. These follow together with a review of the project system operation in relation to your agricultural research program.

SOILS AND IRRIGATION

General operations of research

The presently approved projects together with those in the process of being prepared for approval appear to be well selected and developed to focus research towards the solution of significant problems appropriate to the departmental mission. Faculty attention continually should be directed to the identification of soils and irrigation problems and the planning of appropriate research to provide Jordan agriculture with information and solution to problems.

Even on newly approved projects, the report should state what has been done as a beginning and describe the experimentation that has been started. How promising are results barring unforeseen disasters? What type of data will be obtained?

For projects that have been in operation for one or more years, the annual report provides an excellent means of assembling data in a form for ultimate use in a publication. Furthermore, it affords an opportunity for objective, self-evaluation of performance and the consideration of need for revisions of procedures or even the project itself.

PLANT PRODUCTION AND PROTECTION

General operations

While the mission of this department could be quite diverse, it appears consideration has been given to the building of research groups centering on plant production and protection problems of high significance to Jordan's agriculture. The concentration of research projects on cereals, tomatoes, cucumbers, olives, and grapes indicates good planning. The team approach to production and disease, insect and weed control on these significant crops is commendable and should be encouraged now and in the future.

A new faculty member coming into the department is counselled by the Department Head, Dr. Walid Abu-Gharbieh on procedures, policies and responsibilities within the department. Together they discuss needed research appropriate to the new scientist and the department. Each scientist is expected to study the situations within his own field of interest and to decide the problems upon which he will focus his research. Preliminary plans are then reviewed with the Department Head and the scientist is encouraged to prepare a project outline.

The Department Head names a temporary committee from among his faculty to review and comment on the project proposal. The proposal is then returned to the leader for modifications as needed; after which, it is submitted to the Department Council for review. When accepted by the Department, it is forwarded to the Dean for approval. This is a proven process for project development in agricultural research and is to be encouraged.

Program review

The wheat research program under the leadership of Dr. Duwayri is well planned and focused on significant problems of cereal production. The experimental designs being used in field experimentation are appropriate to precise statistical analysis of data. Significant progress on wheat research is being made. Attention is being given to publication of results to assist farmers.

The barley research program under the leadership of Dr. A. Tall is aimed at determining varietal performance characteristics and especially drought tolerance of local varieties. He has properly designed experimental plots established in fields crossing a range of rainfall amounts. This research is new for Dr. Tall and may need some monitoring.

Horticultural research on deciduous tree fruits under Drs. Shatat and Al-Wir is in the beginning stages. Absence of fruit tree plantings suitable for research on University owned land impedes the initiation of some types of research. In the meantime Dr. Al-Wir with the aid of Dr. Fenton Larsen is making a survey of commercial orchards in Jordan to determine research needs and opportunities. Also they are preparing materials for publication as small circulars for use by Extension personnel to aid fruit growers in orchard management and other aspects of fruit production.

Dr. Shatat is preparing to establish a grape vineyard in which to do production research. He also is planning work on olive production. At this time the planning activities and preliminary work of these new faculty members appears sound.

Vegetable crop research under the leadership of Drs. Rushdi and Suwwan is focused on tomatoes and cucumbers. Planning and experimental designs are appropriate to the research. The principal aim of this research is toward increased productivity and good quality. Production of tomatoes and cucumbers under plastic houses and plastic tunnels for cucumbers is being increasingly adopted in the Jordan Valley. The research work is already providing guidance to the industry. Some of this research is being done in cooperation with irrigation research leaders. Such cooperation is commendable and should be encouraged.

Essential to crop production is the work of Dr. Snobar on farm machinery. He is directing his engineering competence toward the development of equipment that can be expected to be immediately helpful and acceptable to growers. His philosophy of making available simple but useful labor saving equipment is very commendable. He should be encouraged in his cooperation with crop production scientists as equipment becomes ready for field testing.

The entomological research under the leadership of Drs. Sharaf, Shazli and Nazer is timely and essential. The research of Dr. Sharaf on the white fly is very urgent in view of the significance of this insect. So far the research has been well planned and productive. Equipment needs for current and future research on this pest include a research microscope, a binocular and a camera setup for photomicrographs. Incubator space is limited.

The research on olive branch borer by Dr. Shazli is progressing reasonably well. He has two manuscripts accepted for publication which supplement previous publications. He shows good productivity. He is pursuing the development of pest management for the control of insect pests; a system which has proven effective and cost saving in areas where it has been adapted.

Although Dr. Nazer has not yet submitted any projects for approval, he is planning well. His principal interest lies in the development of pesticide resistance, how it can be predicted and dealt with effectively, and he does have a research proposal soon to be submitted.

The plant disease survey work of Dr. Mamlouk is progressing well and is being done with sufficient detail to quantify aspects of each disease. Publication of his results seems most essential. He has some fear of publication acceptability because of the survey nature of the work. Every effort should be made, however,

to overcome any obstacle to publication. This work appears to have considerable merit and should become available to all persons concerned with plant diseases of vegetables, field crops and fruit trees.

Dr. C. G. Shaw aided by H. Khlaif and H. Abu-Blan have made a significant collection and identification of parasitic fungi occurring in Jordan. This supplements and extends similar work of others and will be valuable in any future publication of such work. Dr. Shaw is also providing guidance to graduate students working in Plant Pathology.

The nematology research of Dr. Abu-Gharbieh is widely recognized and is progressing well. The seriousness of nematodes to crop production warrants continued support of research on their behaviour and control.

The other pest problem, weeds, is being pursued by Dr. Irmaileh in a well planned manner. His two projects are well designed and his progress is good. The broomrape problem appears severe on a number of important crop plants, therefore, justifying intensive research on control.

Reporting and publication

The reports submitted in response to the request for an annual report on each project did not identify readily with approved projects. Neither did the reports follow a format that would make their use by administrators straightforward. The reports were informative and generally well prepared, but they were too lengthy for annual report purposes. They followed a publications type format which is alright for advanced research, but unsuited for newly started research.

ANIMAL PRODUCTION AND PROTECTION

The program of this department is broad, including not only animal production and protection, but nutrition and food science. Unfortunately, the number of faculty members is too small to activate all of the programs. Currently no research is being done in animal protection and only limited research in animal production, nutrition and food science.

The teaching requirements place a heavy demand on the few faculty members. Furthermore, this faculty is actively involved in sponsoring local and regional conferences and seminars that have proven very effective. Also, the faculty is called upon frequently to prepare specifications for foods.

The Department Head, Dr. F. M. Faqih, is providing guidance to the faculty in the selection and preparation of research proposals. There is an evident strong desire to do research.

The small faculty and, as yet, limited animal and food science facilities reduce the scope of the research. This situation is well recognized. It is hoped that in time and with funds the scope of the research program in this department can be enlarged to meet more nearly the needs of its broad based mission.

Program review

The poultry program has been greatly facilitated by grants from the Ministry of Overseas Development of the United Kingdom and by the work of Mr. Goddard, stationed here with the Faculty of Agriculture on a three year tour of duty.

With the return of Dr. S. Abdulrahim to the Faculty in September 1978, the research on improving poultry production efficiency can be expected to progress well. The project objectives and the research plans of these research scientists appear sound and feasible. Work will include nutrition, cage vs open housing management, forced molting for extended production of hens and some environmental control of poultry housing in relation to productivity. It is anticipated that facilities for broiler production will become available on the University farm in the Jordan Valley for broiler production studies during October to May each year.

The poultry facilities on campus are good although still limited to accommodate both teaching and research. Some research has been done on broiler production and the quality of the meat in cooperation with Dr. Faqih. Also, some work has been done on egg shell quality. All aspects of the present poultry research program should be continued.

Dr. Perreid, a member of the faculty for two years, is focusing attention on aspects of the food industry. His report was in Arabic and so I could not read it. In cooperation with Dr. S. Tukan, he is working with a leavening bacterium obtained from steep-water from chickpeas. This is interesting and has a reasonably good potential; some continued work seems justified.

His work with local cheese is well planned and progressing satisfactorily. He has some research in progress on debittering of olives. This, he stated, is about ready to be published. His project on utilization of organic wastes for earthworm production as a source of protein in animal feed has encountered a number of difficulties. He plans to revise and request an extension of this work. This should be monitored and carefully reviewed by the Department Head.

Also in food science, Dr. Salma Tukan, on the faculty only since July 1978, has work underway in cooperation with Dr. Humeid on leavening. In addition, she is studying the use of baby foods, post weaning, aimed at improved nutrition and making the transition to solid foods.

The research of Dr. Faqih on production and fattening of Awassi ram lambs is significant, well designed and progressing well. In consideration of the significance of sheep, goats and dairy cows in Jordan, considerably more research on various aspects of meat and milk production could be justified. A number of projects are being considered for development as time permits.

Reporting and publication

There was considerable variation in the report format used and in the presentation of information in the reports as submitted. Some reports presented results of the research while others merely mentioned that results had been obtained or other reports of the results were cited. It is evident that the faculty members need to be coached in the essentials of report writing and educated as to the value of reporting on research progress.

- 1 -

There seems to be an awareness of the need to publish final research results and this is good.

AGRICULTURAL ECONOMICS AND EXTENSION

General operations

With only two faculty members, this department functions like a team with one member serving as administrative leader. Such limited research capability makes it impossible to meet, anywhere near adequately, the research needs of the discipline. It is understood that this situation is not by choice, but because of the unavailability of persons qualified and willing to accept faculty appointment in agricultural economics. This is regrettable as the need for research in this area is great and it is difficult for a very few research scientists to function well in isolation. There is a stimulation generated by having a number of scientists working together in any discipline. It is hoped this department can add faculty to fill available positions in the near future.

Program review

The research of Dr. Steitieh on the extent and the returns of producing vegetables under plastic and with drip irrigation has progressed well. He has prepared manuscripts for publication, one expected to appear in bulletin form within a month and another to be published in Dirasat. The trend towards use of plastic house and tunnel techniques for producing tomatoes and cucumbers is dramatic, showing an increase from about 4100 du. in 1978 to approximately 6800 du. in 1979. Principal harvest in the period January through February provides considerable market advantage.

Two other projects are being carried on: Owner-tenant relationships under new technologies and cost and returns of new techniques. These both appear appropriate and timely.

Dr. Arabiat has completed two projects - one on dairy production and one on poultry feeding. He has forthcoming publications on each. He has a cooperative project with Dr. Snobar dealing with aspects of socioeconomics in mechanizing agriculture. Good progress appears to be the result of well planned and properly conducted research. This cooperative effort is commendable. Another newly prepared project in cooperation with Dr. Duwayri is focused on the economic impact of new technology adoption in wheat production. This proposed research should be encouraged in consideration of potential trends in wheat production.

Reporting and publication

Both of these faculty members have been giving considerable attention to the preparation of publication manuscripts on completed research. This is good. Annual reporting was not well done. The available reports were in the form of publication drafts and were satisfactory for work completed. No reports included a description of research in progress.

Here again is an example of need for coaching in the merits and procedure of annual progress reporting.

REVIEW OF PROJECT SYSTEM OPERATION

It was encouraging to learn that a project system has been adopted and put into use. A system such as this has proven effective through use in many universities engaged in agricultural research. The project outline serves the research leader in defining his research goals and in justifying his assignment of time to research. It serves administrators in documenting what research is being supported, in providing an indication of the progress status and in defending the use of fund support. All parties are served in the research project evaluation and consideration for faculty salary adjustments and promotions. It is essential, therefore, that attention to detail within the elements of the project system be given careful consideration. It is evident that the planning of research projects, their preparation and review at departmental level functions reasonably well. The review process by the Research Committee appointed by the Faculty Council is valuable and is to be encouraged.

Based upon experience, I should like to recommend the adoption of a project numbering system for ready identification of approved projects. Such a system provides easy and ready reference in identifying expenditures, time inputs, reports and publications with projects. In the present research review, some uncertainty has been evident in relating progress reports to ongoing projects.

Another aspect of the project system that needs special attention is the preparation and review of annual progress reports. A number of reports were received and made available to me for review. It was not always apparent the project to which the report applied as some reports covered work done earlier and the current listing of projects did not include the relevant project, others carried title variations that made project tie difficult and uncertain.

At least one department, Soils and Irrigation was consistent in following a uniform format for the reports. This was a help in making the review as the format included the presentation of useful information such as project objectives and procedures.

It is recommended that a format for reporting annual progress be adopted by the Faculty of Agriculture and that it be designed to include information essential to objective and forthright evaluation. A set of guidelines should also be prepared to assist the research leaders in preparing the report. A progress report should be detailed enough to allow an administrator to gain a picture of how well research is being carried out and what data are being obtained or will become available barring unforeseen catastrophe. Such a report should not be so long and comprehensive as to make evaluation so time consuming that no one can or will expend the time. Annual reporting should call to the leader's attention the need to assemble data and to analyse it to facilitate proper interpretation. This should point up the need for careful preservation of data in anticipation of ultimate publication of research results. Reports offer the Department Head an opportunity to counsel each leader on the need for data preservation, analysis and interpretation, and further to discuss plans for final publication. I recommend that the format include the necessary identification information, the planned duration of the research, the project objectives and then about two or three typed pages describing procedures, designs and results of the work done during the preceding year. It is also helpful to request a short indication of the significance of accomplishments and the research planned for the ensuing year. The time of year at which reports become due matters little as there will always be some research in progress with incomplete or unanalysed data, but such work can be fully reported the next year.

The due date can be set by the needs of administrators; often it conveniently precedes the time of annual budgets and faculty evaluation so that consideration of research progress can be used as a criterion for such decisions. It is important for the research project leaders to know that their reports are read and used by their administrators in evaluating and rewarding diligent, honest and productive research. This is strong motivation for good reporting and finally for publication.

The reports available for this review gave the impression that many of the leaders did not know what type of report was requested or chose the easy route of stating that work was still in progress and no conclusions were possible. Some elected to submit a preliminary draft of a proposed publication. This latter type was useful but left the question as to whether it fully covered the work on a project or merely that portion about ready for publication.

I'm certain the annual progress reports can and should become very valuable to administrators of research from department heads on up if the reports are properly prepared to meet the needs of those who must evaluate progress, defend the use of funds and make decisions on rewards for scientists.